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Differentiated Transition of Small Towns in the Millennial Hungary

PhD-dissertation theses

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Introduction

Small towns are step children of the researches in settlement geography, either the number of publications or the almost full lack of comprehensive studies that investigate the problem in a complex approach is seen as an indicator. The settlement geography often represents itself mainly as urban geography, however, this openly or hidden, always meant geography of big cities, while the researchers of the rural spaces mainly focussed on the villages. Therefore the small town, as a unique, transitory category usually evaded the attention of both groups.

Though the small towns in Hungary, just like worldwide mean the majority of the city network regarding their number. Also their total population is considerable, in our homeland some 2-2,5 million people live in small towns, depending on which settlements we classify in this category. This is in itself a mass that makes the differentiated approach, the separate investigation of the settlement category reasonable. The agglomerations of the small towns *basically cover the whole territory of the country,* resulting from their role, their developmental characteristics, possibilities are mirrored also in the fate of the neighbouring area's small settlements.

Also the small town itself develops and changes, even if many regard it as a synonym of provincialism, backwardness, an environment where the speed of the changes is thoughtful, where there is little chance to describe new phenomena. In fact it is about settlements where the local tights were traditionally stronger than the regional or the global ones, where the zenith was usually strongly restricted by the scarcity of resources.

However, the *globalisation* worldwide overwrites the nationally framed settlement-hierarchies, *the new active components of the differentiation of the settlement network are now basically rooted above the national level.* Nevertheless, the space organised by the global and regional networks far not cover the country at large (Enyedi, Gy. 2000, 2004), between and around them are the areas that are mainly untouched by the globalisation or are only passive "sufferer" of that, the widespread areas of locality. To put it another way: the areas that are not affected by outstanding spatial-structural axes stand out by less dense texture of the geographical space (Tóth, J. 1996). So can be also the *places of the localisation* marked out opposed to the places of globalisation at the point where the horizon hardly exceeds the borders of the neighbouring micro-region or county. *The centres of these local places are the small towns*: the direction of their further development determines not only their own population's life but also that of their agglomeration settlements.

This process that in our country and in the area's other countries is supplemented by the post-socialist transition's wave pushing itself on top of the other, meant challenges to every settlement, against which the small towns are more exerted than the internally more differentiated big cities, since the weakening of the elements of the earlier system of functions can have a more serious consequence here, as their spectrum was originally tighter.

In the decades of the socialism the homogenisation was the main development motive, and this manifested itself also in the peculiarities of the urbanisation, inasmuch as it formed a rather uniform group from the small towns that have different origination and undergone diverse developmental paths, small towns that are relatively similar to each other regarding their institutions, society, economy, and also their developmental path converge. On the other hand *the years after 1990 were characterised (also) by the differentiation of these settlements.* In the – earlier very stable – world of the small towns the events accelerated, but the

Hungarian geographical science did not describe and characterise these in a comprehensive manner. Because of the above mentioned reasons the candidate regards this as an important task, not only because of the follow up of the spatial processes but also regarding the aim of the later creation of a development policy adequate for the small towns.

The aim of the dissertation is *the detailed analysis of the processes and factors that determined the formation of the Hungarian small towns' fate in the last two decades*. Another important incentive related to the choice of the topic was that the network of the small towns spectacularly expanded in this period. This process is a settlement geographical transition that awakes also the laic audience's attention, and in which – through cooperation in preparation of city initiation studies – also the author of the work undertook a small part that so also created a chance to deepen our knowledge on the different (city) types. The fit of these new small towns into the city network is disputed. The work, though it does not investigate expressively this problem, deals enough with the settlements that have recently been awarded the town rank, to make an addition to the dispute, that is ultimately about where the village ends and where in fact the town begins.

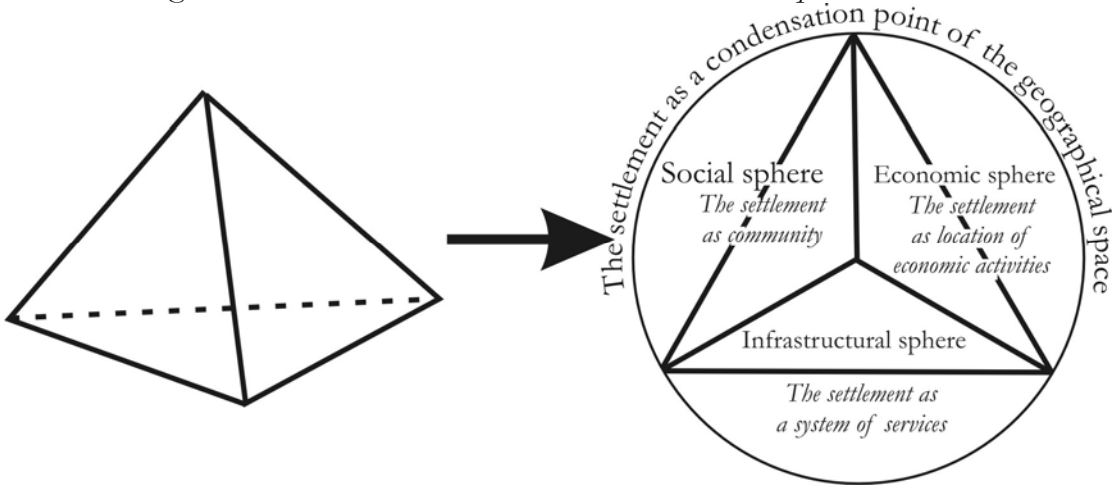
Objectives

The aim of the dissertation is to reveal in a complex manner the active components and peculiarities of the Hungarian small towns' development after the transition. To achieve this, the fulfilment of the following subgoals seemed to be necessary:

1. *The clarification of the small town's definition.* Also the small town is one of the definitions that is used by science and the wider public as well without having a tighter or broader consensus about its exact nature. The small town does not have either an own definition or an undisputable statistical description. Studying the relevant antecedents in the literature, the separate interpretation of the definition became necessary. By doing so also the changed, in the post-industrial social-economical environment valid content of the city's definition had to be concerned.
2. *The description of the position of the small towns in the Hungarian settlement network.* The preparation of a short review that summarizes the most important Hungarian specialities of the small town urbanisation in a retrospective manner, looking back from the present stock and describing the changing place of the small towns in the settlement network, seemed to be reasonable.
3. *Investigation of the small towns' settlement building spheres.* The most important aim of the detailed analysis is to help grasping the most important active components and small town-specific peculiarities of the differentiation, and to build a base to the delineation of the spatial-developmental types. The analysis included three (social, infrastructural, economical) spheres of the settlements so that the emphasis was placed – also regarding the extension – on the third part.
4. *Definition of the complex types of the small towns.* The base for the typology was the settlements' developmental index that partly summarized the results of the detailed analyses by spheres. The index, supplemented with the result of the sub-analyses, developmental peculiarities built the base for the creation of the complex types and that of the classification of each settlement. From the geographical spread of the types, the typical areas of the small town transition could be identified.

The structural frame of the study strongly relies on the tetrahedron model created by József Tóth (Tóth, J. 1981), as an analytical frame. Accordingly, the analysing parts are divided into social, economical and infrastructural chapters, because the less emphasised, but important aim of the work was to extend the logical possibilities lying in the frequently cited but often rather superficially interpreted model. Accordingly, *we interpret also the small towns as system of settlement-builder spheres that are in a dynamic interrelation with each other (Figure 1)*. Nevertheless, the study has a social geographical approach, so it only deals with the social, infrastructural and economic spheres.

Figure 1. The settlements' tetrahedron model and its interpretation in the research



Source: by the author, based on Tóth, J. 1981

Accordingly, *the study does not deal with the natural sphere*. The reasons led to this decision are detailed included in the work, here is only to highlight that the natural factors are unique, so hard to quantify, their effect realises in a much longer timescale than investigated in the study, and it is indirectly expressed also in the values of indicators typical for the other three spheres.

Methodology

The demand for the complex investigation mentioned in the topic-choice part made the use of varied methods necessary. The base of the literature review were the Hungarian settlement geographical works, on the one side the rather few, small town specific studies; on the other side much more general works about the settlement network, cities, city awards, furthermore a few writes that are about general settlement geography or that are methodologically important. The international research antecedents provided only restricted help to the work. The small town seems to be a typically Middle-European problem, at least the geographers of this area dealt with it more or less (rather less) regularly. Summarising, the revealed foreign language literature helped by the creation of the first part of the study, which deals with the definition of the small town, later these parts were harder to adapt because of the specialities of the Hungarian settlement network.

The pith of the study is the data of the HSO T-STAR and that of the census[1]. Though the data of the census in 2001 cannot be seen up-to-date, they are rather indispensable not only regarding the demographical changes, but also regarding the employment, so indirectly regarding the economical structure as well. Furthermore were used data requested from the T-STAR database, and data published in the county statistical yearbooks that usually cover they years 2004 or 2005. This was supplemented by some own data collection and selection, for example the list of the HVG for 2006 about the biggest domestic enterprises, about their small town locations, or about the small town located members of hypermarket-chains, about data necessary to reveal the accessibility conditions etc.

The dynamical perspective was an aim at the investigation of the statistical database, thus where it was possible, the available newest data were compared to the earlier ones. It did not always bring a sufficient result, since in several cases the T-STAR database only contained certain data since the end of the 1990s, so the only 2-3 years difference was slightly enough to analyse the changes. At some points, where it seemed to be necessary, like for example at the economical chapter, the author strived to create the needed timescale by using secondary data.

Usually MS Excel spreadsheet was used for the data analysis and for a part of the charts. For this latter aim also Origin Pro graphic software must have been used where the difficulty of the problem exceeded the level that still could have been handled with the other programme. For some graphic tasks also Corel Draw and Adobe Illustrator softwares were put into action.

The graphical charts (altogether 74 figures) can be regarded not only as illustrations but as a fundamental part of the discussion and one of the most important tools of the analyses. This is true also for the *thematic cartograms* that were made without exception by the MapInfo programme, and aim at the exploration and interpretation of the spatial inequalities.

Though the work contains quite a lot of data, in the methodology there is a majority of qualitative but not quantitative elements. Mathematical methods were used only moderately in the analysis, the emphasize is to be placed not on the statistical distribution but on the behind laying, unique geographical reasons. For the comparability and summary of the partial investigations the *small towns developmental index* was created that quantified the differences between the settlements with the use of some typical indicators. The *typology* basically lays on this index; however the *definition- and model-building* can be seen as a verbal methodology.

Results

Reinterpretation of the small town definition

For the writing of the work the definition of the concept of small towns was needed, since the domestic literature owed with this, and the international one did not contain a small town definition with general validity, either. *It is characteristic also for the majority of the relatively few scientific works dealing with the small towns that they investigate their object without defin-*

[1] Source of the previous ones is the direct data provision service of the HSO, that of the later ones is the well structured and continuously broadened database on the nepszamlalas.hu site.

ing it in detail. A considerable part of the experienced research antecedents regards the definition of the small town as taken for granted, as a smaller size city as it is used in the public sense as well. According to the authors justification it results mainly from the mostly focussed attention of the small town researchers: they undertake the case study-like investigation of one or two, maybe a few settlements, related to these they do not see it necessary to deal with the definition problems.

The interpretation of the definition meant a difficulty also because the small town proved incomprehensible without the investigation of the definition of the urbanisation and that of the city. Also the character and the active components of the urbanisation process changed significantly in the last decades. The Hungarian literature repeatedly emphasizes the dual, quantitative (increase in the number of cities) and qualitative (spread of the urban life-form) meaning of the urbanisation. Besides this also another duality can be observed, namely *the duality of the functional and formal urbanisation*. The former covers the classically meant increase: the number of the people living in cities increases, simultaneously also the urban living form spreads, and the cities' functions broaden. Opposed to this the formal urbanisation is to describe the change that is mostly nowadays typical in our country: the population of the cities – that is globally an important measure of the urbanisation – increases, but the reason for this is that *formal change that sets of settlements get into the legal category of city*. Nowadays in Hungary this latter process became the most emphasised component of the urbanisation. The 125 settlements awarded for city between 1990 and 2005 are home to 849 thousand people: this was 17% of the (country) city population in 2005.

This process somewhat changed also they way of thinking about cities. While the question whether the settlements with city legal status are really cities functionally as well, could not really arise earlier due to the formal urbanisation deficit, nowadays more and more people feel the need for the creation of a temporary category between the city and the village, of course mainly not in the administrative but scientific sense (see for example: Beluszky P. 1999, Beluszky P. – Győri R. 2006, Berényi I. – Dövényi Z. 1996, Dövényi Z. 2006).

These ideas are mainly based on the fact that Mendöl Tibor's already classical definition does not lean on most of the new cities, thus these are mainly not "…*settlements more intensive exploiting land, or specialised in satisfying less frequently emerging needs*" (Mendöl, T. 1963 p. 28). A significant portion of the agglomeration settlements for example does not have a central function; they are basically cities with residential function. Against all of these their city-like being is hard to dispute, the increase, concentration of the population hit the critical mass, which leads the path of the settlements not towards the fulfilment of everyday needs, furthermore *the city life-form is more and more typical for their populations.*

Somewhat differently, but similar questions arise also at other functional small town sizes. The resort settlements fulfil for example without doubt a non-everyday need, but the plural for is hard to use at them, since their central functions are usually very simple. Also lots of previous under-staged centres, settlements belonging to the "spatial structural type" were awarded for city, where the central role building function is often not middle- but under-staged, thus usually it is about very everyday needs.

However, the merit of the formal urbanisation's extension into this direction is not the dilution of the city-stock, not the loss of the city-building power of the single functions (Beluszky P. 1999), but according to the author's opinion it is much more the urbanisation of the settlement network at large. Since if certain, earlier typically city functions are

available already in the villages, then the life-form of the inhabitants of those settlements will be because of this from stage to stage more city-like, and also for example the standardization, which can be experienced in the cultural features, adds to this. This process is not about the renewal of the differences between the city and the village (on the level of the new and new functions), but exactly on the contrary, the slow erosion of the differences. The urbanisation – so the formal as the functional – *eroded the step between the city and the village for a* slope, we do not look already for some definitive edge in the city-definitions, but one point of this slope that is supposed to be only very slightly different form the others. The village and the town, the small town and the city are separated not by sharp lines but by relatively wide temporary zones, where it is hard to point out the absolute, precise borders. Just like also the difference between the settlement and the area outside the settlement appears only in the condensation of different phenomena (Tóth, J. 2004). In this context also the small town is only a relative centre, a focal settlement in the given geographical space that does not dispose above all of the specifications, roles earlier expected from the city. Also the possession of the city title is an important element in the definition, not so much because of the outer reputation, but because of the inner, city self-identification of the settlement's community.

The definition of the small town has to be supplemented with one more element, to be able to separate it from the middle-town; this is what summarising can be called *the dominance of the locality*. The small town can be comprehended historically so in economic, administrative and social sense as a settlement that is characterised by intense relationship with the neighbouring area that is not bigger than the district, micro-region. In this system of relationship the small town is *at once a focus of the area's endogenous resources and mediator of the outer impacts*. Thus summarising *the small town is a settlement that excels from its environment through the density of social, and/or economic and infrastructural elements, offers a city-like way of living, and defines itself as a city, in whose spatial relations locality dominates*.

The changing position of small towns in the Hungarian settlement network

During the research also the concrete set of the settlements that can be seen as small town by the analysis had to be defined after the theoretical approach, respectively definition. Since the main aims of the dissertation are related not to the designation of the set of the small towns but to their differentiation processes, so instead of the consideration by settlements two simple criteria were set up: in the research I looked at settlements that had a city status already in 2005, respectively that did not have a bigger population in 2001 than 30 thousand people – in the Hungarian settlement network there all altogether 250 members like this. The method of the discretion is of course disputable, but the earlier mentioned zone-like character of the borders in advance excludes the perfect solution: even with the apiece investigation of the settlements only that could be stated that we can find more small town characteristics in one, and less in the other.

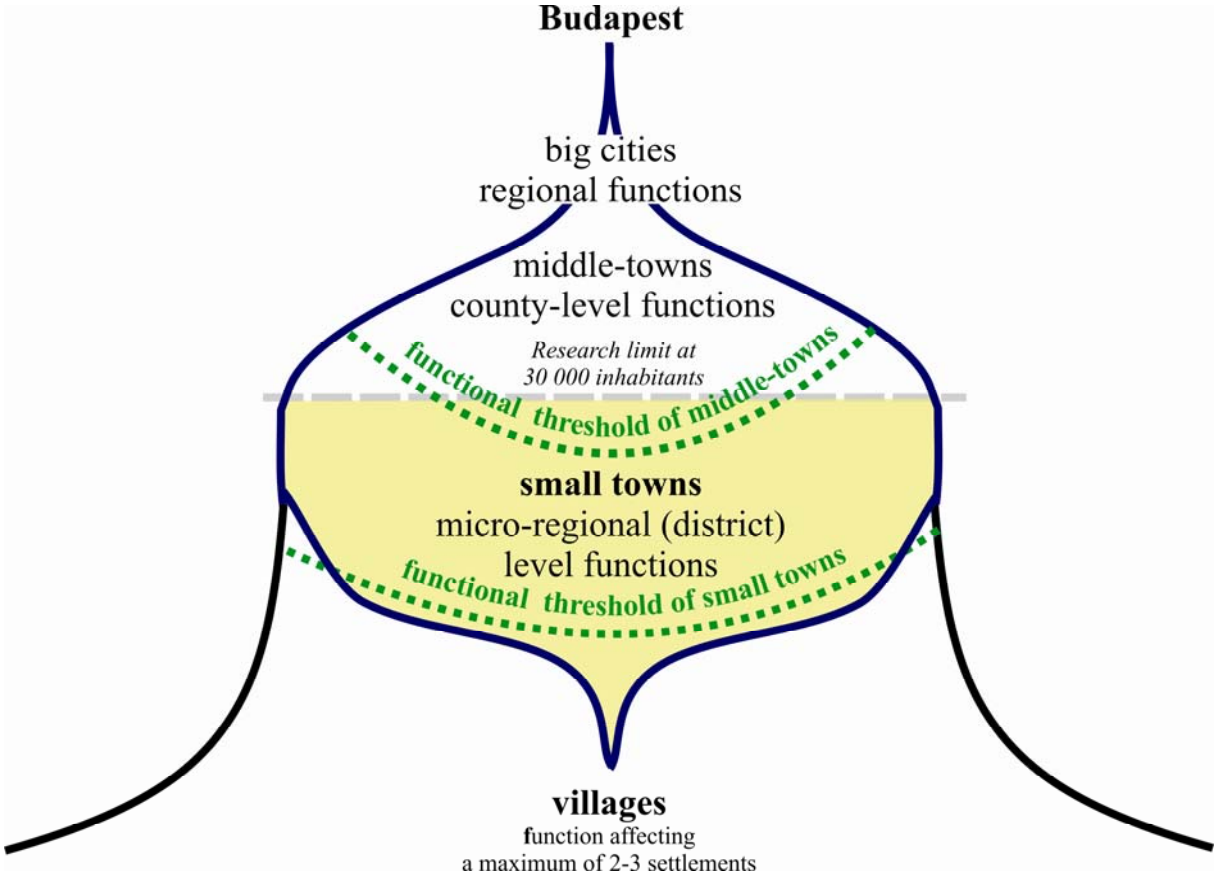
In the research small town interpreted settlements were awarded city status typically only after the World War II, and practically also their urbanisation can be attached to this past sixty years. After 1990 the broadening of the city network became more intensive than ever, and the small towns became more and more typical elements of the Hungarian settlement network. The base of the broadening were different, earlier already described types that are seen valid also by this essay, the dissertation summarised our previous re-

sults related to the city initiation. The most important conclusion of this is that there are legally hardly any differences between the city and the village/big village, moreover, at the settling of the most administrative functions rather the differentiation inside the cities forges ahead. The process, i.e. the process of the formal urbanisation comes soon to a settling point, since we are close to the moment when the reserves of the city declaration ultimately exhaust. Potentially only 150 settlements, big villages, respectively villages with more than 5000 inhabitants mean this reserve, but also among these are numerous that could not candidate with real chance even in the present, pretty permissive regulation.

The positions of the 250 small towns in the settlement network involved in the research are meant to illustrate the model of the following Figure 2, drawing the attention to the fact that *neither the formal border designated by the city status, nor the research limit set by 30 thousand people fits perfectly with the functional limits between village, small town and middle-town.*

The small town stock that includes this way 250 investigated elements, condenses the quarter of the country's population, and in general: regarding the incomes, the enterprises and several other aspects is typically in the 20-25% zone. Under several aspects it excellently represents the spatial processes of the country: with the disappearance of areas with urban deficiency their network covers the full territory of the country, and for example their long run development tendencies and those of the national average are practically the same.

Figure 2. The position of the small towns included in the research in the model of the settlement network



Source: by the author

Analysis of the settlement constructing spheres

In the biggest part of the work the three spheres of the small towns – social, infrastructural and economic – were analysed, with varied indicators. The main aspect was everywhere the capture the factors along which the differentiation realises. Among these also here are to highlight the indicators of the population's change, some qualitative parameters of the society (education, civil activity), in the differentiation the best appearing linear (transport, canalisation) and institutional (educational, cultural, health care) indicators, in the economy the indicators related to the employment, entrepreneurial activity, the presence of the big companies, to tourism and commerce. The result were exceptionally widespread and varied, in the theses only the most important ones are listed:

- Mirroring the social sphere's domestic demographic processes also in the small towns took place the turn in which the previous factors of the increase run down, the natural increase is only characteristic for some settlements that are decisively to be found in Northeast Hungary. Unlike the settlement network at large, *the small towns were* but *characterised between 1990 and 2001 with immigration surplus*. The biggest part of this was realised in the Budapest agglomeration, but also outside this there are small towns that functioned as local migration centres. *This indicates that for a significant portion of the small towns the urbanisation continued also quantitatively in the 1990s.*
- *Regarding the qualitative indicators of the society the small towns show a strongly polarised picture*. If we regard the indicators of level of organisation, expressed in the proportion of either the educational or the civil organisations, the east-west dichotomy, respectively the disadvantageous situation of the Great Plain's small villages becomes apparent, especially in the market-towns of Békés and Hajdú-Bihar county is the falling behind apparent. At the same, also in the Great Plain can be found areas (moreover in the northeast part of Szabolcs-Szatmár-Bereg: Kisvárda, Vásárosnamény, Mátészalka, Fehérgyarmat) where the qualitative indicators (regarding non-for-profit organisations, graduates) compete with those of the Transdanubian ones. Also the high quality of the social resources that are available for the cities with resort function, respectively the typical duality of the Budapest agglomeration is an important experience.
- The settlements made/make up in a fast tempo the technical backwardness accumulated in the infrastructural sphere in the last decades. This can be traced in the gas- and sewage canalisation network, in the earlier typically bottleneck telecommunication, furthermore in the transport infrastructure. *The transport accessibility became one of the most important factors of the differentiation that decisively determinates the location choice of the economic organisations.*
- As regards the elements of the human infrastructure, the small towns got here in almost every case on a slow, but seemingly long-lasting decline. The demographic low-tide, the pressing need for cost decreasing in the public utilities, the chronic lack of resource of the municipalities together *led to the slow erosion of the institution's number and capacity*. The most spectacular aftermaths are to be seen in the field of the health care, where the reform measures usually classified the small town's hospitals in the second class, so basically making an already existing difference official. The secondary education is in a somewhat better

situation, but the maintenance of the present supply level is very questionable because of the decrease in the number of children and because of quality problems. The institutional system of the culture and public education is apparently still looking for its right place, and it is struggling with the pretty residuary-principle based, within the settlements existing financing problems.

- The institutional sphere is the field where the level of the compulsory functions is more or less related to the number of the population, so here *is a sharp division line between the bigger settlements with multiple roles that earlier maintained district level institutions and the new small towns awarded town status usually after 1990*. However, also the signs of the levelling can be traced: the previous category's less developed/lucky settlements (for example by losing their hospital) slip down further, while lots of settlements newly awarded for city catch up with institution development (consultations by specialists, secondary school, cultural institutions). Also the spatial differences are less striking than in the other two investigated spheres, since it is a slowly changing sphere where the inherited differences still seem to be stronger.
- The present economic structure and competitiveness is strongly determined by the fact that before the 1960s the industrialisation affected the level of the small towns only very restricted, and it mainly achieved spectacular results where the urban traditions were absent. In the second half of the socialist era *the industry development on the countryside* decreased the differences not only among the small towns but also between the small and the bigger cities. The *aftermaths* of this *are still in effect today*, mechanical engineering that was earlier basically unknown on this level showed up, even if not in the highly modern form. Though the economic structure strongly changes after 1990, the previous locations were still in an advantageous position regarding the investments, so the previous structures partly reproduce themselves or survive. The new spatial differences are determined firstly by the appearance of innovative branches, and secondly by the rather selective and occasional survival or erosion of the food- and light industry centres that achieved earlier a pretty big plant size.
- *The transition of the economic structure of the small towns was accompanied by the general decrease of employment, in several cases by the total disappearance of the territorial employer-function of the city*. Within this also the economic-employment structure changed, of course the main booster of the process was the *forging ahead of the tertiary branches*. Simultaneously we can experience the strong fall of the agriculture's proportion that was mainly typical in the smaller settlements where its relative positions were taken mainly by the industry, whereas in the more significant towns the service branches forged ahead against the industry.
- *Tertiarisation* itself includes several specialities. The small towns are enriched in commerce roles and if they earlier already had it they successfully preserved or developed their tourism function. However, the effect of the tourism is only very concentrated: it is important only in a few small towns' life, but in these it determines the economic structure and numerous features of the social sphere as well. At the same time also another aspect of the tertiary branches' forging ahead appears when the depression of other economic fields increases their relative weight. This is mainly typical in East Hungary, respectively in some small towns of South Transdanubia: the relative importance of the public utili-

ties increased due to the weakness of the industry and that of the economic-like services, thus these cities live more and more on their institutions.

- The employment types of the small villages were definable based on the employment's branch and commuter characteristics (on the database of the 2001 census). The most important statement related to this is that the highest rate of employment is characteristic on the one hand for the industrial small villages with significant workforce attraction – these are mainly to be found on the northern part of Transdanubia. The dominance of the business services is also accompanied with high rate of employment, and this is a typical uniqueness of the agglomeration and resort settlements. The lowest average employment level is typical for the towns with the majority of the public utilities that are typically situated on the eastern borderline. The group with the lowest average population is that of the market-towns: this circle is by today strongly reduced, its members are mainly to be found in Bács-Kiskun county.

A complex survey of the development level and the types of the small towns

A quantified index of the development level of the small towns

Besides the qualitative analysis of the transformation of the respective spheres it seemed necessary to make a quantitative comparison of the development disparities as well. Later it became the basis of classification. I excluded the use of factorial analysis from the similar methods most frequently used for the analysis of multiple variants, as it was not suitable for the examination of the mutual correlations of the preliminary defined spheres (groups of factors). A complex index was then created whose basis was the index of four important indices of the respective spheres in each group, each index playing an important role in the differentiation in accordance with the previous survey. The indices are as shown in the table below:

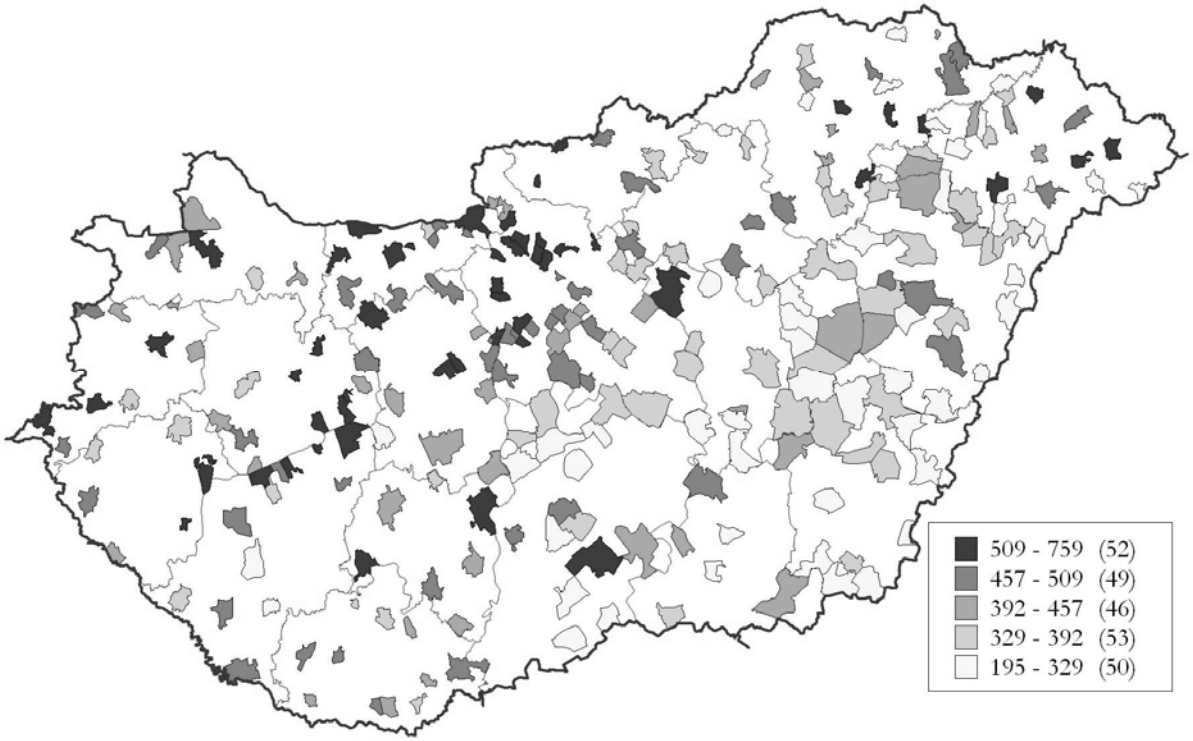
Social sphere:	
Natural increase	average of the years 1990-2001
Migration balance	average of the years 1990-2001
Share of degree holders from the respective age group	2001
Number of non-for-profit organisations per 100 inhabitants	2004
Infrastructural sphere:	
Homes with sewage canal	2004
Value of accessibility index	2008
Number of hospital beds, and number of patients treated in outpatient care	2005
Proportion of commuting secondary school students	2005
Economic sphere:	
Employment rate	2001
Proportion of those employed in the respective settlement	2001
Number of businesses per 1,000 inhabitants	2004
Personal income tax per inhabitant	2004

The method was very similar to that used e.g. by Bajmócy, Péter and Balogh, András in their survey of the differentiation of the small villages (Bajmócy P. – Balogh A. 2002).

The first step of the calculation of the index was the definition of the average of the respective index typical for the small towns. In the second step, the values of the respective settlements were featured in the proportion of this average. In the third step I put these values into an order: the highest value scored 100 points in each case, the rest were given proportionately less. In the cases when the indices could have a negative value (natural decrease, migration balance), two separate scales had to be created for the positive and the negative values, and I had to calculate with the reciprocal value for the negative figures, but the procedure was actually untouched. In the fourth step the scores collected at the respective spheres were added, making the *partial indices* (economic, social and infrastructure spheres). In each partial index the theoretical maximum of a settlement could be 400 points. The use of partial indices allowed the comparison of the respective spheres, the introduction of their interrelationships, and the quantification of the factors playing a role in the success or failure of the individual towns. Finally, in the fifth step the addition of the partial indices gave us the *combined index*, the theoretical maximum of which could be 1,200 – the small town with the highest value scored 758 points on the scale.

In connection with the partial indices, the correlations with each other and the factors making the respective indices were examined, as were the relations to the number of inhabitants in the settlements and their spatial distribution. The limits of the thesis and its format do not allow the publication and analysis of a map featuring the distribution of all three partial indices; in the map below the total index is featured, only (Figure 3).

Figure 3. Values of the development index (combined index) of the small towns



Source: calculations and design by the author

The development level of the small towns of course reflects the *regional location*; in this respect we can clearly see the more dynamic and the less rapidly developing regions of

Hungary. In both directions, however, there are significant local differences: the relatively good performance of a few small towns (Kisvárda, Mátészalka) in Northeast Hungary in actually all three partial indices, or the below average performance of a few small towns in the Transdanubian region. As regards the combined index, the absolute first position goes to Budaörs: this is not surprising, knowing the processes of this small town many times cited in the literature. In the appendix of the thesis the reader finds the ultimate table of the indices, but the 20 small towns in the best and another 20 in the worst position are also featured in the table below (Table 1.).

Table 1. The most advanced and the least developed small towns (im the best 20 and the worst 20 positions in the order defined by the development index of the small towns)

rank	small town	index	rank	small town	index
1.	Budaörs	758.15	231.	Nyírlugos	281.81
2.	Szentendre	735.50	232.	Gönc	278.78
3.	Hévíz	708.03	233.	Tompa	278.50
4.	Fonyód	683.91	234.	Abaújszántó	275.33
5.	Aszód	668.85	235.	Nagybajom	273.17
6.	Zalakaros	662.05	236.	Tiszacsege	268.57
7.	Százhalombatta	651.16	237.	Mindszent	259.95
8.	Tiszaújváros	645.30	238.	Sarkad	258.07
9.	Paks	641.09	239.	Füzesgyarmat	255.32
10.	Siófok	631.92	240.	Elek	255.13
11.	Bábolna	622.59	241.	Kecel	248.18
12.	Budakeszi	620.51	242.	Kadarkút	246.34
13.	Visegrád	618.03	243.	Vésztő	246.25
14.	Balassagyarmat	598.90	244.	Battonya	242.12
15.	Záhony	598.76	245.	Kunhegyes	240.82
16.	Csorna	591.74	246.	Komádi	224.38
17.	Szigetszentmiklós	591.55	247.	Abádszalók	224,11
18.	Keszthely	591.37	248.	Borsodnádasd	207.89
19.	Esztergom	587.02	249.	Cigánd	203.28
20.	Komárom	579.56	250.	Nagyecsed	195.02

Source: calculations and design by the author

The threshold set at position 20 at both ends of the above table is of course an arbitrary threshold, but the comparison clearly reflects some disparities: at the successful end of the scale we find small towns in the Budapest agglomeration (Budaörs, Szentendre, Budakeszi etc.), holiday resorts (Fonyód, Hévíz, Zalakaros, Siófok…), industrial towns after a successful restructuring (survival?) (Százhalombatta, Tiszaújváros and Paks), and a few small towns with "traditionally" versatile central functions (Esztergom, Csorna, Komárom and Balassagyarmat). At the other end of the scale the geographical concentration is rather strong: the factors coming from the regional location and the ones deriving from the characteristics of the settlement network mutually reinforce each other and lead to the lagging of the small towns of the Great Plain. It is also striking that although the value of the development index does not necessarily coincide with the number of population in the

small towns, still the most underdeveloped small towns are usually those that have a small number of inhabitants.

The examination of the different dimensions of the differentiation of the small towns made it clear that success or failure could be achieved as a result of different factors. This made it necessary to make complex types as a closing act of the survey of the transformation of the small towns, types that take the genetic, the functional differences and the disparities in the dynamism of development into consideration at the same time. Abandoning the use of a purely mathematical-statistical typifying, and based on the findings of former surveys we selected a few indices on the basis of which the types were defined and the respective small towns were typified. These indices were the development index, the employment types and partially the polarity index (not featured in the thesis, looking at the direction and value of the development index in the respective spheres). The typifying again used the tetrahedron model serving as an analytical and logical framework of the essay; the concept of the spheres making the settlements was taken from this model.

Accordingly, the small towns make four basic groups, with several further subgroups (Table 2.). The basis of this fourfold division was the dominance of a settlement-making sphere (or its absence in one case); in the author's opinion each corresponds to a group of factors by which the small towns is "present" in the system of interactions of the geographical space, or they show the most intensive density in the case of the respective settlement. *According to the classification used then we can differentiate among economic, social and infrastructural centres, and complex towns that do not show either striking deficiencies or spectacular surplus in any of the spheres.*

The small towns defined as *infrastructural centres* were those that had an outstanding role due to their institutions and (public) services (see Figure 1.). As regards the methodology used, the basis of the classification was primarily the sub-index of infrastructure, with special regard to the indices of the institutions, their weight in the development index, and the negative deviations of the sub-index of the economy.

Instead of the social centre role it seems to be more accurate to select the residential functions, because this type usually contains towns that have this status due to the size of their population in the first place, they are settlements where the urban functions and services are usually used by the local inhabitants, only. The basis of the categorisation was the strength of the social sub-index and the weakness of the institutional indices in general, migration and commuting to other settlements, on the one hand. However, this category also contains settlements that have an almost stable balance of labour force but a low level of employment and few institutions, a growing number of population but weak educational and non-for-profit indices; to put it short, they are – usually rather underdeveloped – small towns that have a very weak impact on their surrounding. After a lengthy hesitation we decided to create a separate subgroup for the so-called image settlements (see Pirisi, G. – Trócsányi, A. 2006), which make a clearly distinct group but are very hard to categorise according to the spheres used in the survey. However, the settlement heritage primarily determining the image of the respective small towns can be seen as a social category in the first place.

The *economic centres* seem to be the most evident: the developed small towns are usually towns attracting a large number of labour force, they are home to the subsidiaries of competitive large or middle companies, with favourable income and employment indices and a high proportion of industrial employment. This category also contains those former economic centres that usually have weak employment and income positions now and are characterised by outmigration, their society has degraded and now have weak resources –

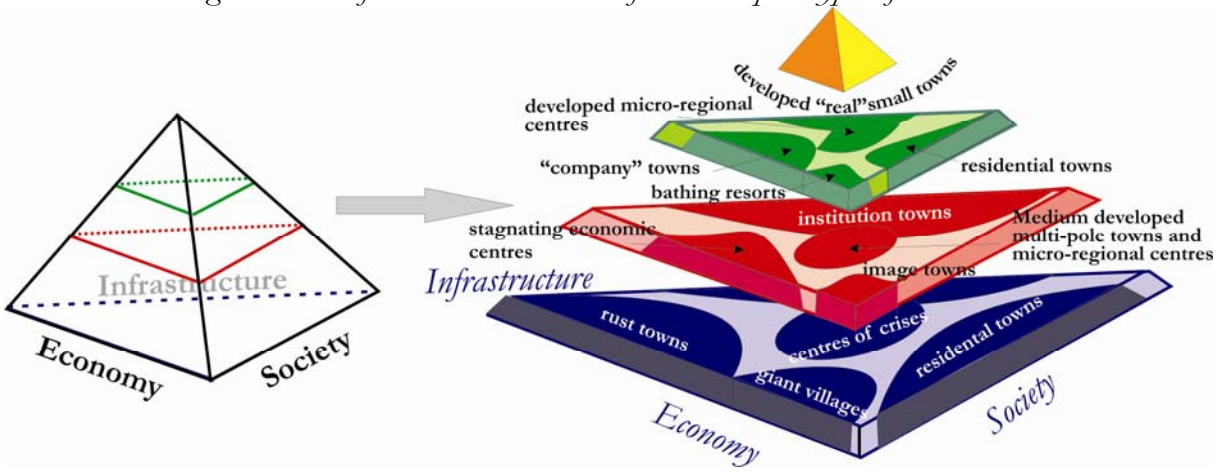
but their institutions, often as remnants of the more glorious days of the past, are relatively developed. This category is thus somewhat more genetic than the rest. Another subset of the economic group is the bathing resorts (easily definable statistically: high number of guest nights, high employment level, strong activity of non-for-profit organisations). We can see as the counterpoles of these adaptive, open settlements those – typically Great Plain – settlements that primarily stand out with their agricultural functions besides their average or below average development level.

Finally there is the category of the *complex or multi-pole settlements*, which is far from being a single category. At least two sub-categories can be defined: the "real" small towns with versatile functions, i.e. the small towns in the strictest sense of the word (proportionate sub-indices, employment functions, more or less stable migration balance, institutions and non-for-profit activity), and the smaller micro-regional centres that have less institutions but an adequate development level of the social and the economic sphere.

As we descend along the order of the development index, we find that both the smaller and the larger towns – the former may be identified with the so-called spatial structural type of new towns, according to Tóth J. 1996) – shrink equally in each sphere, with no major imbalances. A characteristic subgroup in this category is made by those, usually small, "central places" that were awarded the town status as the (usually lower rank) centres of underdeveloped spaces.

The author makes an attempt in Figure 4 to *feature the types of small towns characterised above in the system of the tetrahedron model, not for an individual settlement but for the whole of the network of the small towns in this place.* Making three sections of the tetrahedron he tried to grab the positions of the sub-types, in a way that the respective sides of the tetrahedron are identical with the three main types described above; the vertical axis located at the same distance from all three sides marks the small towns with balanced development, while the vertical dimension is used to demonstrate the relative development level shown by the index. The end result is the figure below (Figure 4.).

Figure 4. Use of the tetrahedron model for the complex types of the small towns



Source: by the author

The model of course uses certain simplifications: for example the grabbed sections do not describe even theoretically each small town, only the characteristic types; and the *positions of the settlements are not based upon exact calculations but on the experiences gathered during the research, and abstractions.* The top of the pyramid, which logically can only be occupied by the towns in the strictest sense of the word, i.e. (developed) settlements with institutional, economic

and social functions, is far from being so clear in reality, as the absolute positions on the top of the hierarchy are not necessarily had by such towns, in some cases we find e.g. bathing resort on the top. Still, breaking away from the logics of the index, in a complex approach their small town functions are weaker than those of their counterparts with a more versatile set of functions.

Besides the figure, a table too summarises the most important characteristics of the types of the small towns (Table 2.). Most of the functional groups are not sensitive to development, they contain several categories. For the classification the thresholds were set at position 75 and 175, but for a better comparability we also feature the score of the average development index and the position in the rank by the number of population, in fact, even the average of the number of population.

Naturally the spatial distribution of the respective types was also demonstrated (Figure 5.). The spatial correlation is rather weak, definitely weaker than the regional determination of the development disparities. It is more typical that all eight types are present in almost all of the regions.

Table 2. Development types of the small towns, and a few characteristics of the settlements belonging to the respective type

		Social		Economic			Infrastructural		Multi-pole	
		residential town	image town	"company" town	bathing resort	rust town	giant village	institution town	"real" small town	micro-regional centre
developed	pieces	15	3	4	11			2	34	6
	dev. index	45.6	28.6	24.7	31.7			72.5	35.1	49.6
	pop. rank	13.6	223.6	132.7	182.6			62	57.0	184.6
	no. of pop.	14,857	3,325	24,461	5,591			14,550	169,49	5,379
middle developed	pieces	22	1	8	2	2		19	29	16
	dev. index	123.9	122	110.8	115.5	171		119.8	127.7	130.8
	pop. rank	128.2	220	171.7	126.5	110		58.0	99.4	216.0
	no. of pop.	9,264	3,907	6,132	12,841	10,624		14,956	11,214	3,814
underdeveloped	pieces	9	1	1		6	15	4	10	29
	dev. index	205.3	212	178		199.3	222.8	202.5	197.6	161.7
	pop. rank	133.3	245	178		151.5	154	44.2	112.2	126.2
	no. of pop.	8,443.3	2,153	5,833		9,544	6,958	17,977	9995.9	4,324
types total	pieces	46	5	13	13	8	15	25	73	51
	dev. index	114.3	84	89.5	44.6	192.2	222.8	129.3	94.1	138.8
	pop. rank	91.8	227.2	160.2	174	141.1	154	56.1	81.4	161.2
	no. of pop.	10,927	3,207	11,749	6,706	9,814	6,958	15,407	13,718	4,288

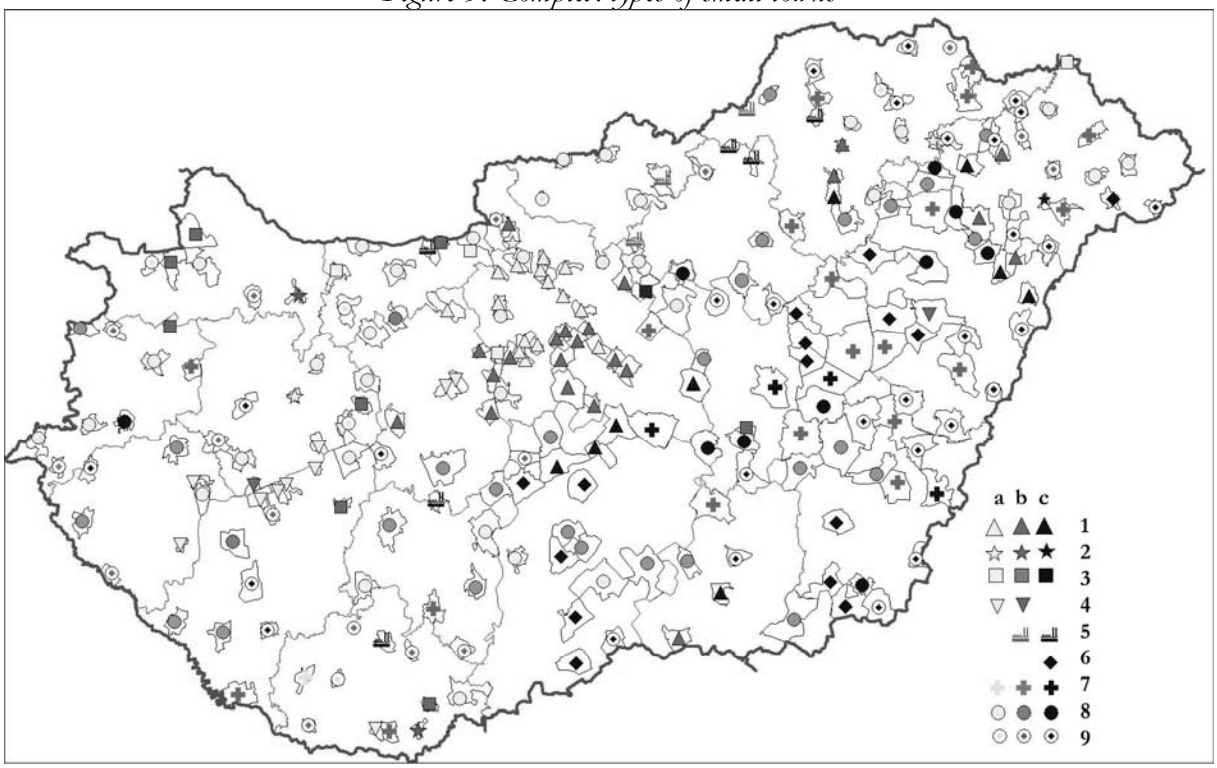
Source: calculation and design by the author

Among the functional types, the residential towns of course have a strong density around the capital city, but we also find quite a few in the eastern part of Hungary, as this category does not only entail classic agglomeration settlements (like Felsőzsolca, Hajdúsámson or Sándorfalva in this region) but also some towns in the Nyírség area where the respective

towns can be partially taken as dominantly residential town – for want of anything better – due to the weakness of their central functions.

A typical North Transdanubian phenomenon, on the other hand, is the category called company (subsidiaries) towns, made by economic and employment centres, as this group only has two representatives in the Great Plain (Martfű and Záhony), the rest can be found west of the Danube River. This group anyway is characterised by the fact that they are only the "second line" of the important economic centres – except maybe Százhalombatta –, as the small towns that are the most important from the economic sense are usually in the multi-pole category, due to the fact that their economic roles are not the exclusive or most important functions that the settlements have.

Figure 5. Complex types of small towns



Source: calculation and design by the author

Note: a-b-c: development categories: a: 1-75, b: 76-175, c: 176-250 (See Table 2)
1-9: functional types: 1: residential towns, 2: image towns, 3: "company"-towns, 4: bathing resorts, 5: rust towns, 6: giant villages, 7: institution-towns, 8: "real" small towns, 9: micro-regional centres

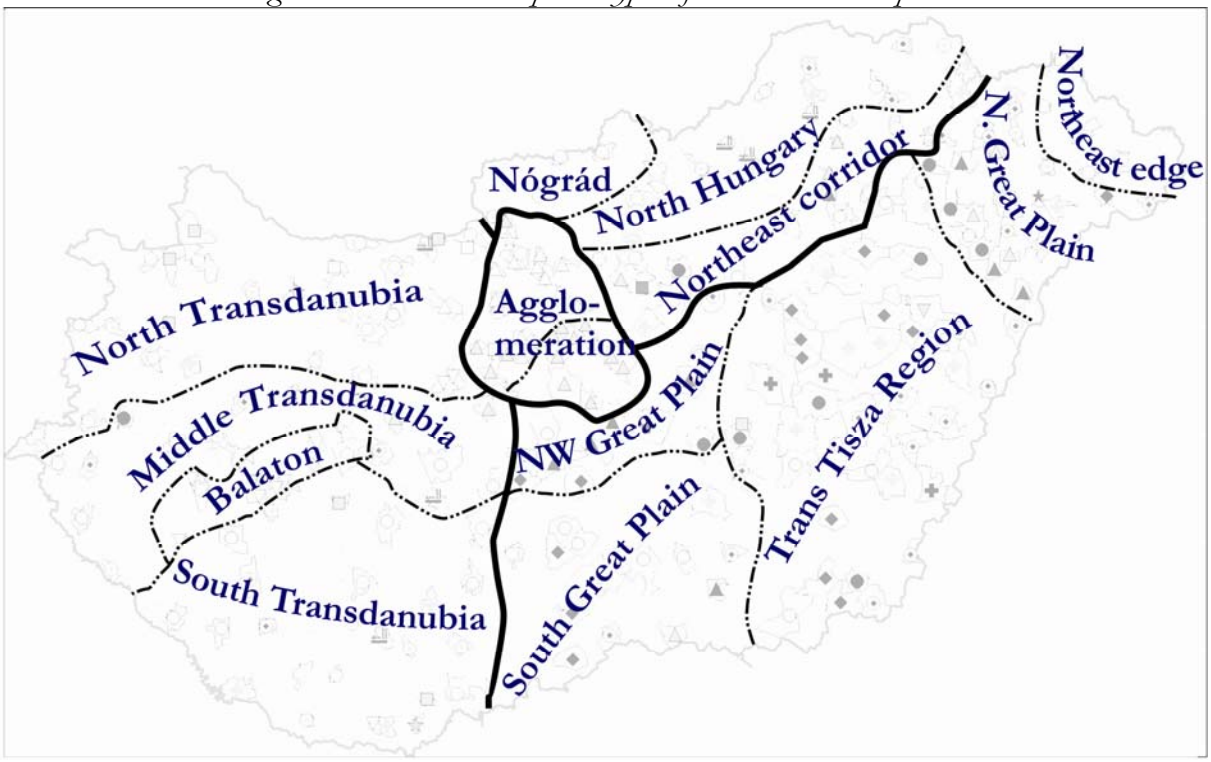
The spatial distribution of the bathing resorts is anything but surprising, in addition to the Zalakaros–Balaton–Velence axis it is only Harkány and Hajdúszoboszló that fits into this category. The type – somewhat pejoratively – *called giant villages shows a definite spatial concentration*: they are all situated in the Great Hungarian Plain, most of the times in the southern areas. The type called institution towns is also a phenomenon more typical in East Hungary: as we have already mentioned, this category is primarily defined by negative tendencies, i.e. the deficiencies of the spheres other than institutions. It is not by chance than that small towns in this group can mostly be found, in addition to the Great Plain, in South Transdanubia in larger numbers (Szigetvár, Barcs, Bonyhád, Siklós). The *two multi-pole complex types* are region-specific only inasmuch as the type with the larger number of population is more frequent west of the Danube River than east of it, evidently because lagging

behind is less of a problem in the Transdanubian region: the major central functions brought about more institutions, the more favourable regional positions amounted to a more successful economic restructuring, so these towns have weak points much more rarely than their Great Plain counterparts that had to be put into another category. The other important difference of course is the level of development: the same type bears a much higher average development level in (north)west than in southeast.

As a summary of the former examinations, relying on the complex types of course in the first place, and supplementing them in some places, we my attempt to define the characteristic spatial types of small town development (Figure 6). The foundation of this is the spatial concentration of the small towns belonging to the different categories, but their homogeneity is relative in all cases, only, the boundaries of the categories are necessarily uncertain and naturally vague. This means that the figure should be taken as a draft, and the settlements are featured in faded colours. Some of the regions are more clear-cut, some are less designable, they usually do not cover geographical regions in the traditional sense of the word, still their name usually comes from the geography.

The designation of the development spaces of small towns was done at two levels, too. The sharper boundaries are actually the large regions of settlement geography: the Transdanubian region, North Hungary, the Great Plain, and the agglomeration of Budapest. These all are complex areas where sub-regions can be defined from the aspect of small town development.

Figure 6. Characteristic spatial types of small town development



Source: by the author

The Transdanubian region is a fourfold region, as regards small towns, with two distinctively and two less clearly definable regions. Naturally – as the development of the small towns is in close relation with the regional development in the general sense – the North Transdanubian region is home to the most developed small towns. Besides a generally high level of

development, these towns are characterised by a high economic efficiency: high employment level and usually advanced industry, in addition to a regional employment role. Because the small town institutions are also typically built out here, the most frequent types of small towns are the multi-pole ones, in addition to the economic centres.

The Middle Transdanubian area south of it can be considered as a transitory zone: the developed and functionally rich small towns are fewer, the number of population is also less, and the general development level is decreased. The bulk of these small towns can be found in Zala county: Zalalövő, Lenti, Zalaszentgrót. Also, a considerable part of Veszprém county belongs to this category, together with the southern area of Fejér county. The towns in this category are towns with an average level of development that have to share their functions – as opposed to the northern part of Transdanubia – with a much larger number of middle towns (besides the county seats, Nagykanizsa, Ajka and Dunaújváros are such).

Heading southwards we find a region *definitely homogeneous* from our aspect: the *Balaton region*. This is a region of small towns of different size, a real multi-centre agglomeration of small towns whose central settlements (Siófok and Keszthely) are among the most developed ones in their category. The spatial organisational power of these settlements is marked by the large number of inhabitants with higher education diploma, many non-for-profit organisations and several businesses. The town Zalakaros was also put into this category, it is the bathing resorts anyway that are most widespread in this area.

South Transdanubia is also a *transitory zone* like Middle Transdanubia, but in a different sense. Although the lack of middle towns should mean that the small towns have important functions, they are not fully capable of fulfilling this role. Their indices have a large variation, their performance is heterogeneous. Their polarity, if they have any, is typically connected to infrastructure, despite their bad accessibility, i.e. the *role of traditional small town institutions is important in this region*. The typical type is the multi-pole towns and the institution towns, but, as opposed to the other Transdanubian areas, we find definitely underdeveloped small towns in South Transdanubia (Nagybajom, Kadarkút).

Moving to the east another very distinctive although not at all homogeneous block is made by the small towns of the agglomeration of Budapest. The double character of the agglomeration is a recurring phenomenon in my thesis, the origins of which can be found in the first place in the quality of the social indices and in some economic features. The *surveyed settlements in the Buda side of the agglomeration have become real small towns by now*, functioning not only as residential places but also as economic centres. On the *Pest side* the quantitative change has not turned into a qualitative transformation yet, but *these settlements are also outstanding in their set and are sharply different from their Great Plain counterparts*.

North Hungary shows a special situation. *Within the region, Nógrád county is quite different from the rest*, the small towns of this county are typically among the most advanced ones in the countryside Hungary. The effect of Budapest is palpable here to some extent, on the one hand, and the small towns are the only urban category in the otherwise underdeveloped area, on the other hand. On the southern edge of the region, in a stripe with good transport accessibility – actually *along the M3 motorway – there is a zone of dynamic small towns* where economic restructuring was successful. This is an area at the meeting point of different landscapes, with traditionally good endowments, competing with South Transdanubia. The two most typical towns of this group are Hatvan and Jászberény, but the group also contains the small towns in the agglomeration of Miskolc, and Sárospatak and Sátoraljaújhely far in the east.

The inner areas of the region, the small towns in the basins of the mountains have a much weaker performance. Although there are a few small towns standing out with their indices from their environment (Szikszó, Encs), the most typical are the underdeveloped rust towns in a hopeless situation, and the situation is made even more desperate by the fact that the micro-regional centres are rather underdeveloped.

The Great Plain cannot be said to be homogeneous, either: there are basic settlement geographical differences that influence the development possibilities of the small towns. *Compared to the general Great Plain situation, in certain parts of Szabolcs-Szatmár-Bereg county the central functions of the small towns are more significant.* This was reflected in practically all surveys, and this is also revealed by the examination of the complex types, as in the northeast edge of Hungary Kisvárda, Mátészalka and Fehérgyarmat could be listed among the well-functioning developed small towns.

The *type called North Great Plain* (the rest of Szabolcs-Szatmár-Bereg county and the northern, Hajdúság part of Hajdú-Bihar county) is primarily *characterised by a relatively large number of residential towns, which in this case marks a definitely weakly developed type with deficient functions.* In this area the last small town with favourable development index is Nagykálló, south of this town, in the Trans-Tisza area we do not find a single advanced small town. This latter feature is the dominant in the designation of the area. The Tisza River is a relatively sharp division line; most of the weakly developed small towns are concentrated here. As regards the functional aspects, there are many institution towns and multi-pole towns; also, we find some giant villages here too.

The region called, for want of anything better, *Northwest Great Plain* has a special situation, *concentrating several small settlements* with definitely *weak indices from Solt to Újszász.* This region is a transitory area between the central agglomeration and the Great Plain, at last in the functional sense, as the type of residential towns is also present here. The development level of these residential towns, however, is far below that of their counterparts in Pest county. The type called *South Great Plain type* is far less characteristic: the type similar to the Trans-Tisza one can be designated by the somewhat higher development level.

Possible use of the research findings and further research directions

The most important research result in the author's opinion was the comprehensive picture made of the diverging development paths of the small towns of Hungary and the positioning of this settlement category in the Hungarian settlement network. These results have far-reaching value and can have several possible forms of use. The most important may be the fact that the present research findings can serve as the starting point of new researches. However much the essay tried to make a comprehensive picture, there were factors that could not be analysed for lack of space and time. Such factor is the regional development relations, despite the fact that very exiting questions could have been raised in this field. It could have been interesting to see if the tools and objectives of regional development play a part in the differentiation or not, and if so, whether they appear in the form of positive or negative feedbacks. It would have been worth investigating which are the special small town challenges of regional and settlement development, both from the side of the objectives and the methods. The essay may be suitable in its present form for being used in the preparation of decision-making in regional development, by providing assistance in the location of the small towns in the geographical space of Hungary and de-

scribing the trends most affecting their development, nevertheless it would also be desirable to look at the correlations of regional development and the issue of the small towns from other aspects too. It would be interesting to see for example how successful the settlements are in tendering, what objectives they set and how successful they are in the implementation of these.

An issue raised in connection with the award of the town ranks, i.e. the detailed empirical analysis of the lower bottom of the small towns, in connection with the previous issues is to what extent the development of a respective small town can be determined by individuals promoting the local affairs and dynamising the state administration. In general: one of the most important directions of further researches seems to be the detailed surveys of the local society with socio-geographical methodology, the analysis of the role of the communities and maybe even the individuals that or who are very important factors of development at this level of the settlement hierarchy.

Another possible research direction also neglected by the essay is the detailed analysis of the issues related to the technical sphere, above all the transformation of the architectural image and the settlement structure of the small towns, together with the survey and exploration of the market and community mechanism affecting this process. This again requires local surveys, sample settlements and the drawing of inductive consequences, well supplementing in my opinion the former settlement morphology surveys focusing on the major towns and cities in the first place. The image of the towns has substantially changed in the past years, although we do not even have surveys from the previous decades that could serve as a basis of comparison for the different types of the small towns.

Another important form of use can of course be education, as the research findings can also be applied in higher education, in addition to development and research. This would require the transformation of the essay into a concise book and its publication, allowing both the lecturers and the students to get hold of it. This way a book could be born that could be of use in the first place in master or postgraduate training for a better understating of the spatial processes.

Publications

I. Published literature related to PhD topic

1. Hajdú, Z. – Pap, N. – **Pirisi, G.** 2005: *Handelszentren und Siedlungstruktur im Komität Tolna.* In: Zsilincsar, W. (ed.): Einzelhandelsstrukturen am Rande von Kleinstädten. Institut für Geographie und Raumforschung, Karl-Franzens-Universität Graz. pp. 99-108.
2. László M.– **Pirisi G.** 2005: *A civil szervezetek szerepe a terület- és településfejlesztésben.* In: Pap N. – Tóth J. (szerk.): Terület- és településfejlesztés I. Alexandra Kiadó, Pécs, pp. 69-90.
3. László M. – **Pirisi G.** 2005: *Önkormányzatok gazdálkodása és a településfejlesztés.* In: Pap N. (szerk.): Terület- és településfejlesztés Tolna megyében. Babits Kiadó, Szekszárd, pp. 269-304
4. **Pirisi, G**.– Trócsányi, A. 2006: *Demografska kretanya u Madjarskoj na prekretnici milenijuma* (Demográfiai folyamatok az ezredforduló Magyarországán). Zbornik, Matice Srpske Za Drustvene Nauke (A Matica Srpska Társadalomtudományi Szemléje), 121. Novi Sad, pp. 465-478.
5. **Pirisi G.** – Trócsányi A. 2006: *Átalakuló kisvárosok a Dél-Dunántúlon.* Földrajzi Értesítő, 1-2. pp. 87-108.
6. László, M. – **Pirisi, G.** 2007: *Management of local governments and the development of settlements.* In: Pap, N. (ed.): Tolna – a rural area in Central-Europe. Regional and local development in Tolna County, Hungary. Lomart, Pécs, pp. 99-106.
7. **Pirisi, G.** – Trócsányi, A. 2007. *Recent Demographic Trends in Hungary, and Their Manifestation in Small Towns.* Man & Development, Vol. XXIX. no. 3., pp. 147-160.
8. Trócsányi A. – **Pirisi G.** – Malatyinszki Sz. 2007: *A célnál fontosabb a bejárt út. A várossá nyilvánítás gyakorlata Magyarországon.* Falu Város Régió, 3. sz. pp. 18-27.
9. **Pirisi G.** – Trócsányi A. 2007: *A várossá nyilvánítás, mint a területfejlesztés eszköze? A városi cím elnyerésének területpolitikai vonatkozásai.* Területfejlesztés és Innováció, 1. évf. 2. sz. pp. 2-8.
10. **Pirisi G.** – Trócsányi A. 2007: *Utószó egy kutatáshoz: A várossá nyilvánítás településföldrajzi kérdései.* In: Szónokyné Ancsin G. – Pál V. – Karancsi Z. (szerk.): A határok kutatója – Tanulmánykötet Pál Ágnes tiszteletére. Magyarságkutató Tudományos Társaság, Szabadka, pp. 203-210.
11. **Pirisi, G.** – Trócsányi, A. 2007: *Demographic Processes in Hungary and their Manifestation in Small Towns.* Romanian Review of Regional Studies, Vol. 3. Issue 2., pp. 73-82.
12. **Pirisi G.** – Trócsányi A. 2007: *Humán erőforrások helyzete Magyarország határ menti kisvárosaiban.* In: Szónokyné Ancsin G. (szerk.): Határok és Eurorégiók, SZTE TTK Gazdaság- és Társadalomföldrajzi Tanszék, Szeged, pp. 273-278.
13. **Pirisi G.** 2008: *Kisvárosok differenciálódása társadalmi mutatók alapján.* In: Csapó, T. – Kocsis, Zs. (szerk.): Nagyközségek és kisvárosok a térben – Large villages and small towns in the space. Savaria University Press, Szombathely, pp. 277-288.

14. Fáth-Hegedüs, V. – **Pirisi, G.** 2008: *Die Rolle heiltouristischer Projekte bei der Erneuerung einiger Kleinstädte in Südtransdanubien.* In: Zsilincsar, W. (ed): Wege aus der Krise. Erfahrungen mit Strukturschwachen Regionen. Karl Franzens Universität Graz, pp. 107-118.
15. **Pirisi G.** 2008: *Kisvárosok kulturális infrastruktúrája a Dél-Dunántúlon.* In: Pap N. (szerk.): Kultúra – területfejlesztés. Imedias, Pécs, pp. 81-100.
16. **Pirisi G.** 2008: *Kisváros vagy kis város? A kisváros-fogalom földrajzi értelmezésének lehetőségei.* In: László M. – Bucher E. (szerk.): A terület- és településfejlesztés társadalomföldrajzi megközelítésben. Geographia Pannonica Nova 4. Imedias Kiadó, Pécs, pp. 243-260.
17. **Pirisi, G.** – Trócsányi, A. 2009: *Role of Image Towns in the Hungarian Urbanisation.* In: Csapó, J. – Aubert, A. (eds.): Differentiating Spatial Structures in the Central-European Region. University of Pécs, pp. 105-117.
18. **Pirisi, G. –** Trócsányi, A. 2009: *The Transformation of Villages into Towns – A Qantitative Way of Hungarian Urbanisation.* Geographia – Studia Universitatis Babeş-Bolyai. Vol. LIV, No. 1. pp. 75-82.

II. Conference presentations related to PhD topic

19. **Pirisi G**. 2003: *A közlekedési infrastruktúra-fejlesztések lehetséges hatásai a Dél-Dunántúli régió városhálózatára.* In: Kis M. – Gulyás L. – Erdélyi E. (szerk.): Európai Kihívások 2. Szegedi Tudományegyetem, Szegedi Élelmiszeripari Főiskolai Kar, Szeged, 2003. pp. 345-349.
20. Bucher E. – László M. – **Pirisi G**. 2004: *Civil szervezetek és településfejlesztés a Dél-Dunántúli régióban.* In: A magyar földrajzi kutatás kurrens eredményei. II. Magyar Földrajzi Konferencia. Táj, tér tervezés – geográfus doktoranduszok VIII. országos konferenciája. SZTE Természeti Földrajzi és Geoinformatikai Tanszék, Szeged. 13 p. (CD-ROM kiadvány)
21. **Pirisi, G.** – Szabó, A. – Trócsányi, A. 2008: *The transformation of villages into towns – A quantitative way of Hungarian urbanisation.* In: Csapó, T. – Kocsis, Zs. (szerk.): Nagyközségek és kisvárosok a térben – Large villages and small towns in the space. Savaria University Press, Szombathely, pp. 60-68.

III. Other publications

22. **Pirisi G**. 2003: *A Dél-Dunántúli régió határ menti kistérségeinek közlekedési problémái.* In: Szónokyné Ancsin G. (szerk.): Határok és az Európai Unió. SZTE TTK Gazdaság- és társadalomföldrajz Tanszék. pp. 162-168.
23. Bucher E. – **Pirisi G**. – Reményi P. 2004: *A dél-dunántúli németség hatása a társadalmi-gazdasági fejlődésre.* In: Kupa L. – Gyurok J. (szerk.): Határ menti régiók és kisebbségek a 19-20. században. B&D Stúdió, Pécs, pp. 153-166.
24. **Pirisi, G**. – Reményi, P. 2005: *The development of transportation infrastructure, as the main field of the Slovenian-Hungarian co-operation.* In: Bufon, M. (ed.): Slovenija Po Letu 2004 — Mostisce med EU in Jugovozhodno Evropo? (Slovenia after the year

2004 – Gateway between EU and South-Eastern Europe) Založba Annales, Univerza na Primorskem, Koper, pp. 309-322.

25. Tóth, J. – **Pirisi, G**. 2005: *Die Lage der ungarischen Sozialgeographie, ihre Tendenzen und Einrichtungen nach der Jahrhundertwende.* Arbeitsmaterialen zur Raumordnung und Raumplanung. Universität Bayreuth, Heft 240. pp. 37-50.
26. **Pirisi G**. – Trócsányi A. 2005: *Európa kulturális fővárosa a Mecsekalján*. Földgömb 2005/8. pp. 52-60.
27. Tóth J. – Wilhelm Z. – **Pirisi G**.– Kiss K. 2005: *A Kárpát-medence térszerkezetének stratégiai irányai az „andráskereszt" alapján.* In: Pap N. – Végh A. (szerk.): IV. Magyar Politikai Földrajzi Konferencia. – A Kárpát-medence politikai földrajza. PTE TTK FI KMBTK Pécs pp. 10-19.
28. **Pirisi, G.** – Trócsányi, A. 2006: *The effects of post-industrial processes in the spatial structure of Pécs, Hungary.* In: Aubert, A. – Tóth, J. (eds): Stadt und Region Pécs. Arbeitsmaterialen zur Raumordnung und Raumplanung, Heft 243. Universität Bayreuth, pp. 89-108.
29. László M. – **Pirisi G.** 2007: *A terület- és településfejlesztés intézményrendszere.* In: László M. – Pap N.(szerk.): Bevezetés a terület- és településfejlesztésbe. Lomart K., Pécs, pp. 35-52.
30. **Pirisi G**. 2007: *A terület- és településfejlesztés településtípusok szerinti aspektusai.* In: Bucher E. – László M. (szerk.): A terület- és településfejlesztés válogatott, annotált bibliográfiája. (A magyar regionalizmus válogatott, annotált bibliográfiája 3.). Lomart K., Pécs, pp. 9-28.
31. **Pirisi, G.** – Stefán, K. – Trócsányi, A. 2008: *The role of cultural economy in the revival of cities – endowments and chances of the city of Pécs.* In: Lóczy, D – Tóth, J. – Trócsányi, A. (eds.): Progress in Geography in the European Capital of Culture 2010. Imedias Publisher, pp. 11-23.
32. **Pirisi, G.** – Reményi, P. 2008: *Corridor V/C – Infrastructural development = regional development? A possible Hungarian perception.* In: Nurković, R. (ed): Utjecaj prometa na reigonalni razvoj / Traffic influence of the regional development. Univerzitet u Tuzli. pp. 69-74.
33. Bucher, E**.** – **Pirisi, G.** – Reményi, P. 2008: *Der Einfluss der Ungarndeutschen auf die gesellschaftlich-wirtschaftliche Entwicklung Ungarns in der Region Südtransdanubien.* In: Hammer, E. – Kupa, L. (Hrsg.): Ethno-Kulturelle Begegnungen in Mittel- und Osteuropa. Verlag Dr. Kovač, Hamburg, pp. 131-146.
34. László M. – Bucher E. – **Pirisi G.** 2008: *Az önkormányzatok gazdálkodása és szerepe a területfejlesztés terén.* In: László M. – Bucher E. (szerk.): A terület- és településfejlesztés társadalomföldrajzi megközelítésben. Geographia Pannonica Nova 4. Imedias Kiadó, Pécs, pp. 139-186.